



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,378	07/31/2000	Chandra S. Chekuri	2-4-4	4158
7590	01/11/2005		EXAMINER	
Joseph B Ryan Ryan & Mason LLP 90 Forest Avenue Locust Valley, NY 11560			MILLS, DONALD L	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
P.O. Box 1450  
ALEXANDRIA, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

MAILED

JAN 11 2005

GROUP 2600

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/628,378

Filing Date: July 31, 2000

Appellant(s): CHEKURI ET AL.

---

Joseph B Ryan  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed September 13, 2004.

**(1) Real Party in Interest**

A statement identifying the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) Status of Claims**

The statement of the status of the claims contained in the brief is incorrect. The status of all the claims are the same as the statement in the brief except for claim 7 (see below).

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Invention**

The summary of invention contained in the brief is correct.

**(6) Issues**

The appellant's statement of the issues in the brief is incorrect. The issues are all the same as the statement in the brief except for claim 7 (see below).

The changes are as follows: issue 4 is no longer applicable since the rejection to claim 7 is withdrawn.

**(7) *Grouping of Claims***

The appellant's statement in the brief that certain claims do not stand or fall together is correct with exception to claim 7 since the rejection to claim 7 is withdrawn. Therefore, claims 1, 4, 8 and 23-25 stand or fall together, and claims 2, 3, 5, 6, and 9 stand or fall alone.

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

5,561,841	Markus	10-1996
6,128,497	Farouque	10-2000

**(10) *Grounds of Rejection***

The rejection is set forth in the final Office Action, mailed on April 6, 2004, is included below for the Board's convenience.

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4, 8, 9 and 23-25 are rejected under 35 U.S.C. 102(b) as anticipated by Markus (US 5,561,841); claim 5 is rejected under 35 U.S.C. 103(a) as unpatentable over Markus in view of Farouque (6,128,497); and claim 6 is unpatentable under Markus.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8, 9, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Markus (US 5,561,841).

Regarding claim 1, Markus discloses a method and apparatus for planning a cellular radio network, which comprises:

*Applying an optimization process to a set of information characterizing the network*

(Optimizing the operation of the network based upon its operation. See column 11, lines 13-16,) *the optimization process comprising at least a pre-frequency-assignment optimization stage, the pre-frequency-assignment optimization stage being applied to assignment of frequencies to one or more communication channels of the wireless network* (Optimization is performed by correcting the network configuration which comprises frequency allocation which is inherently for a wireless network. See column 11, lines 16-17 and column 5, lines 63-65.)

*Utilizing an output of the optimization process to determine at least one operating parameter of the wireless network* (Optimizing cell areas and channel handovers results in adjusting the borders of the service areas. See column 11, lines 29-33.)

Regarding claim 2, Markus discloses *a multistage optimization process having at least the pre-frequency-assignment optimization stage followed by a frequency assignment stage* (The optimal parameters, comprising frequency allocation, are determined prior to the assignment of frequency. See column 5, lines 65 and column 6, lines 1-4.)

Regarding claim 3, Markus discloses *repeating in an iterative manner the pre-frequency-assignment optimization stage and the frequency assignment stage* (The program operates

iteratively utilizing the control parameters, comprising frequency allocation, which inherently comprises assigning the frequency a value. See column 11, lines 19-21.)

Regarding claim 4, Markus discloses *wherein the frequency assignment stage comprises a frequency planning stage* (Frequency planning is determined. See column 6, lines 1-2.)

Regarding claim 8, Markus discloses *wherein the operating parameter of the wireless network comprises at least one of a base station transmit power and an antenna orientation* (The network configuration of the wireless network comprises adjusting the base station by means of power level, which inherently includes transmit power. See column 11, lines 33-35.)

Regarding claim 9, Markus discloses *wherein the optimization process determines a network configuration for specified values of network capacity and network coverage* (Optimal locations and parameters are found for capacity and coverage. See column 5, lines 65-66 and column 6, lines 3-5.)

Regarding claims 23, 24, and 25, Markus discloses a method and apparatus for planning a cellular radio network, which comprises:

*A processor-based system operative to apply (Claim 23)/Means for applying (Claim 24)/Applying (Claim 25) an optimization process to a set of information characterizing the network* (Referring to Figure 1, the Network Planning System, inherently processor based, optimizes the operation of the network based upon its operation. See column 4, lines 46-48 and column 11, lines 13-16,) *the optimization process comprising at least a pre-frequency-assignment optimization stage, the pre-frequency-assignment optimization stage being applied prior to assignment of frequencies to one or more communication channels of the wireless network* (Optimization is performed by correcting the network configuration which comprises

frequency allocation which is inherently for a wireless network. See column 11, lines 16-17 and column 5, lines 63-65.)

*Wherein (Claims 23 and 25)/Means for utilizing (Claim 24) an output of the optimization process is utilized to determine at least one operating parameter of the wireless network*  
(Optimizing cell areas and channel handovers results in adjusting the borders of the service areas. See column 11, lines 29-33.)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markus (US 5,561,841) in view of Faruque (US 6,128,497).

Regarding claim 5 as explained above in the rejection statement of claim 1, Markus discloses all the claim limitations of claim 1 (parent claim). Markus does not disclose *wherein the wireless network implements a frequency reuse factor greater than one*.

Faruque teaches a fractional frequency reuse plan of that provides a cellular radiotelephone system N=5.333 capacity (See column 3, lines 23-25.) In addition, Faruque teaches that greater frequency reuse allows more mobile traffic to use the cellular system (See column 1, lines 51-53.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the frequency reuse plan of Faruque in the cellular radio network planning method Markus. One of ordinary skill in the art at the time the invention was made would have been motivated to do so in order to allow more mobile users to access a cellular system.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markus (US 5,561,841).

Regarding claim 6 as explained above in the rejection statement of claim 1, Markus discloses all the claim limitations of claim 1 (parent claim). Markus does not disclose *the wireless network comprising at least one of a TDMA wireless network, an FDMA wireless network, a CDMA wireless network, an OFDM wireless network, and a TDD wireless network.*

Markus teaches a method for planning a cellular radio network, specifically a GSM network, where the performance of the cellular network can be optimized (See column 2, lines 3-8 and column 5, lines 7-8.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement CDMA or TDMA in the cellular radio network planning method Markus. One of ordinary skill in the art at the time the invention was made would have been motivated to do so in order to optimize CDMA and TDMA systems.

**(11) Response to Argument**

Issue 1

On page 4 of the brief, regarding claims 1 and 23-25, Applicant argues that Markus (US 5,561,841) does not disclose *an optimization process to a set of information characterizing the network, the optimization process comprising at least a pre-frequency-assignment optimization stage, the pre-frequency-assignment optimization stage being applied prior to assignment of frequencies to one or more communication channels of the wireless network.* The Examiner respectfully disagrees. Independent claims 1 and 23-25 are very broad; therefore, the Examiner interprets the assignment of frequencies as distributing designated frequencies to communication channels during system turn-up. Markus discloses optimizing cell areas and channel handovers applied to wireless network communication channels during radio network planning (See column 11, lines 29-35.) This process of Markus occurs during the planning stages of a radio network design, where radio frequencies are selected based upon statistical data and optimized. The optimization process of Markus is performed in an iterate fashion until the optimum results are generated. After the optimization process, frequencies are then assigned for use on one or more communication channels for the wireless network for on-air-use. Therefore, Markus discloses the claimed invention of a pre-frequency-assignment stage by performing an optimization process prior to frequency assignment, which occurs during system turn-up.

In addition, Markus discloses locating the optimal locations and parameters for base stations by positioning network elements at desired locations on the digital map, and determining their antenna location, antenna power, antenna direction and frequency allocation (See column 5, lines 61-67.) Again, this optimization process of Markus occurs during the planning stages of a radio network design; therefore, prior to frequency assignment.

The Applicant argues this aspect of the invention relates to “coverage planning” which is distinct from “frequency planning,” in which frequency assignment is performed. The Examiner respectfully disagrees. Markus describes the purpose of frequency planning as a means to determine a frequency re-use pattern and then base station-specific frequency groups so as to minimize the level of network interference (See column 6, lines 1-4.) The base station-specific frequency groups are not assigned at this point because the model is still in the planning stages and has not been optimized. To re-iterate, the frequencies have not been assigned or finalized at this point since the optimal design has not yet been achieved, otherwise, this process would be unnecessary.

On page 5 of the brief, regarding claims 1 and 23-25, Applicant argues Markus teaches a post-processing program applied after assignment of frequencies to communication channels of the system. The Examiner respectfully disagrees. Again, independent claims 1 and 23-25 are very broad in nature and have many different reasonable interpretations, several of which are explained above. Markus teaches a post-processing of data during a simulation, before assigning frequencies to the system, for determining the optimal operation of the network (See column 11, lines 15-26.)

In spite of the Examiner’s interpretation of broad claims 1 and 23-25, by Applicant’s own admission Markus anticipates the disclosed invention. Specifically, Applicant admits Markus discloses, “coverage planning” (See page 4, line 18,) which is performed prior to frequency planning, capacity planning, parameter planning and transmission planning, in that order (See page 5, lines 25-27,) as stated by the Applicant in the brief. Therefore, Markus discloses a pre-

frequency-assignment optimization stage (coverage planning) prior to frequency assignment (frequency planning).

The Applicant argues that the relied portion of Markus (See column 5, lines 61-64,) relates to the Nokia Network Planning System NPS/X in which “frequency allocation” is made prior to optimization. The Examiner respectfully disagrees. By definition, the Nokia Network Planning System NPS/X is a system in which planning occurs. Only, after the system has been optimized and completed are the frequencies of the system assigned to users and put on-the-air. Any determination of frequencies prior to the conclusion of the planning system is merely temporary or arbitrary, and does not constitute an assignment until the process has achieved its end resultant of assigning frequencies to users and put on-the-air. In conclusion as consistent with the Examiner’s interpretation Markus discloses an optimization stage, which occurs prior to frequency assignment, which is the actual assignment of frequencies to users during system turn-up.

On page 7 of the brief, regarding claim 2, Applicant argues Markus does not disclose a multi-stage optimization process having at least the pre-frequency-assignment optimization stage followed by a frequency assignment stage. The Examiner respectfully disagrees for the reasons stated above.

On page 7 of the brief, regarding claim 3, Applicant argues Markus does not disclose a multi-stage optimization process having at least the pre-frequency-assignment optimization stage followed by a frequency assignment stage being repeated in an iterative manner. The Examiner respectfully disagrees. Markus discloses the programs operate iteratively to update the cellular network according to operation statistics (See column 11, lines 36-45.)

Art Unit: 2662

On page 7 of the brief, regarding claim 9, Applicant argues Markus does not disclose the optimization process as determining a network configuration for specified values of network capacity and network coverage. The Examiner respectfully disagrees. Markus discloses an optimization process, which determines a network configuration for the specified network coverage and capacity according to the selected operator positions of the network elements (See column 5, lines 64-67 and column 6, lines 4-7.)

Issue 2

On page 8 of the brief, regarding claim 5, Applicant argues the claim is allowable for at least the reasons identified above with regard to independent claim 1. The Examiner disagrees for the same reasons above.

Issue 3

On page 8 of the brief, regarding claim 6, Applicant argues the claim is allowable for at least the reasons identified above with regard to independent claim 1. The Examiner disagrees for the same reasons above.

Issue 4

Issue 4 no longer exists, because the rejection to claim 7 is withdrawn.

Art Unit: 2662

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Donald L Mills



DLM

January 7, 2005

Conferees

Hassan Kizou 

Chau Nguyen 



JOHN PEZZLO

PRIMARY EXAMINER

Joseph B Ryan  
Ryan & Mason LLP  
90 Forest Avenue  
Locust Valley, NY 11560